



Index to Volume 37 (2005)

No 1 (January) pp 1–138	No 6 (May) pp 583–644	No 11 (15 September) pp 1095–1204
No 2 (February) pp 139–284	No 7 (June) pp 645–780	No 12 (October) pp 1205–1318
No 3 (March) pp 285–354	No 8 (July) pp 781–878	No 13 (November) pp 1319–1446
No 4 (1 April) pp 355–470	No 9 (August) pp 879–974	No 14 (December) pp 1447–1544
No 5 (15 April) pp 471–582	No 10 (1 September) pp 975–1094	

Article Index

No 1

- Geometric algorithms for rapidly reconfigurable mold manufacturing of free-form objects
A. Kelkar, R. Nagi and B. Koc 1
- Extreme points of a large 3D point set along multiple directions
C. K. Chan and S. T. Tan 17
- An effective modeling of single cores prostheses using geometric techniques
K.-H. Yoo and J.-S. Ha 35
- A reverse engineering method based on haptic volume removing
Z. Yang and Y. Chen 45
- Iso-planar piecewise linear NC tool path generation from discrete measured data points
H.-Y. Feng and Z. Teng 55
- Computer-aided characterization for effective mechanical properties of porous tissue scaffolds
Z. Fang, B. Starly and W. Sun 65
- Fast variational design of multiresolution curves and surfaces with B-spline wavelets
G. Zhao, S. Xu, W. Li and O. E. Teo 73
- Parameterization and parametric design of mannequins
C. C. L. Wang 83
- Fidelity in visualizing large-scale simulations
V. Popescu and C. Hoffmann 99
- Drawing curves onto a cloud of points for point-based modelling
P. N. Azariadis and N. S. Sapidis 109

- A multi-material virtual prototyping system
S. H. Choi and H. H. Cheung 123
- A thorough encyclopaedia on geometric modelling, its foundations, methods and applications
N. S. Sapidis 137

No 2

- Threading splines through 3D channels
A. Myles and J. Peters 139
- Product portfolio identification based on association rule mining
J. Jiao and Y. Zhang 149
- Three-dimensional anisotropic geometric metrics based on local domain curvature and thickness
K.-F. Tchon, M. Khachan, F. Guibault and R. Camarero 173
- Isoparametric line sampling for the inspection planning of sculptured surfaces
D. F. Elkott and S. C. Veldhuis 189
- Fair, G^2 - and C^2 -continuous circle splines for the interpolation of sparse data points
C. H. Séquin, K. Lee and J. Yen 201
- Geometric algorithms for containment analysis of rotational parts
M. Karnik, S. K. Gupta and E. B. Magrab 213
- Tolerance synthesis: quantifier notion and virtual boundary
J.-Y. Dantan, L. Mathieu, A. Ballu and P. Martin 231
- MATHSM: medial axis transform toward high speed machining of pockets
G. Elber, E. Cohen and S. Drake 241

- Graph-based feature recognition for injection moulding based on a mid-surface approach
H. L. Lockett and M. D. Guenov 251
- A piecewise hole filling algorithm in reverse engineering
Y. Jun 263
- Non-self-overlapping Hermite interpolation mapping: a practical solution for structured quadrilateral meshing
C. C. L. Wang and K. Tang 271

No 3

- Heterogeneous object models and their applications
A. Pasko and V. Shapiro 285
- Feature-based design and material blending for free-form heterogeneous object modeling
K. Samanta and B. Koc 287
- A hierarchical representation for heterogeneous object modeling
X. Y. Kou and S. T. Tan 307
- A level-set based variational method for design and optimization of heterogeneous objects
M. Yu Wang and X. Wang 321
- Computer-aided design of porous artifacts
C. Schroeder, W. C. Regli, A. Shokoufandeh and W. Sun 339

No 4

- Announcement 355
- Biarc approximation of polygons within asymmetric tolerance bands
M. Held and J. Eibl 357
- Floor, wall and ceiling approach for ball-end tool pocket machining
J. C. J. Chiou 373

Direct slicing of STEP based NURBS models for layered manufacturing
B. Starly, A. Lau, W. Sun, W. Lau and T. Bradbury 387

Decomposing the problem of constrained surface fitting in reverse engineering
A. Karniel, Y. Belsky and Y. Reich 399

Hybrid cutting simulation via discrete vector model
J. W. Park, Y. H. Shin and Y. C. Chung 419

A parametric feature-based CAD system for reproducing traditional pierced jewellery
V. Stamati and I. Fudos 431

Hollowing objects with uniform wall thickness
S. C. Park 451

Ten challenges in computer-aided design
L. A. Piegl 461

No 5

Special section on geometric modeling and processing
S.-M. Hu and H. Pottmann 471

Intersecting a freeform surface with a general swept surface
J.-K. Seong, K.-J. Kim, M.-S. Kim, G. Elber and R. R. Martin 473

Handling sectional views in volume-based approach to automatically construct 3D solid from 2D views
J. Dimri and B. Gurumoorthy 485

Surface interpolation of meshes by geometric subdivision
X. Yang 497

Three-dimensional shape searching: state-of-the-art review and future trends
N. Iyer, S. Jayanti, K. Lou, Y. Kalyanaraman and K. Ramani 509

Tolerance envelopes of planar mechanical parts with parametric tolerances
Y. Ostrovsky-Berman and L. Joskowicz 531

Feature extraction from large CAD databases using genetic algorithm
P. Pal, A. M. Tigga and A. Kumar 545

On the development of a haptic system for rapid product development
Y. Chen, Z. Yang and L. Lian 559

Advances in collaborative CAD: the state-of-the art
J. Y. H. Fuh and W. D. Li 571

No 6

CAD methods in garment design
C. C. L. Wang and M.M.F. Yuen 583

Research problems in clothing simulation
K.-J. Choi and H.-S. Ko 585

From early virtual garment simulation to interactive fashion design
P. Volino, F. Cordier and N. Magnenat-Thalmann 593

3D virtual apparel design for industrial applications
M. Fontana, C. Rizzi and U. Cugini 609

Reactive 2D/3D garment pattern design modification
Z. G. Luo and M. M. F. Yuen 623

Pattern flattening for orthotropic materials
J. McCartney, B. K. Hinds and K. W. Chong 631

No 7

Automatic layout design of plastic injection mould cooling system
C. L. Li, C. G. Li and A. C. K. Mok 645

Arc-intersect method for 5-axis tool positioning
P. J. Gray, S. Bedi and F. Ismail 663

Design automation for customized apparel products
C. C. L. Wang, Y. Wang and M. M. F. Yuen 675

Subdivision surfaces for CAD—an overview
W. Ma 693

Reduction of post-processing for stereolithography systems by fabrication-direction optimization
H.-C. Kim and S.-H. Lee 711

Haptic function evaluation of multi-material part design
Z. Yang, L. Lian and Y. Chen 727

CAD tools for aesthetic engineering
C. H. Séquin 737

Industrial geometry: recent advances and applications in CAD
H. Pottmann, S. Leopoldseder, M. Hofer, T. Steiner and W. Wang 751

A cutting-tool-dependent approach for partitioning of sculptured surface
S. P. Radzevich 767

A valiant attempt at defining
P. A. Bilello 779

No 8

CAD'04 Special Issue: modeling and geometry representations for CAD
L. A. Piegl 781

Approximating centroids for the maximum intersection of spherical polygons
J.-S. Ha and K.-H. Yoo 783

Adaptive knot placement in B-spline curve approximation
W. Li, S. Xu, G. Zhao and L. P. Goh 791

Freeform surface flattening based on fitting a woven mesh model
C. C. L. Wang, K. Tang, and B. M. L. Yeung 799

Modeling wrinkles on smooth surfaces for footwear design
F. Jing, A. Joneja and K. Tang 815

A Delaunay-based region-growing approach to surface reconstruction from unorganized points
C.-C. Kuo and H.-T. Yau 825

Modeling generalized cylinders using direction map representation
J.-H. Lee 837

Optimizing the topological and combinatorial complexity of isosurfaces
C. Andújar, P. Brunet, A. Chica, I. Navazo, J. Rossignac and Á. Vinacua 847

Feature-based decomposition of trimmed surface
K. C. Hui and Y.-B. Wu 859

Lossless compression of predicted floating-point geometry
M. Isenburg, P. Lindstrom and J. Snoeyink 869

No 9

CAD'04 Special Issue: Product design, integration and manufacturing
L. A. Piegl 879

Domain independent shell for DfM and its application to sheet metal forming and injection molding
Z. Zhao and J. J. Shah 881

Block Cartesian abstraction of a geometric model and its application in hexahedral mesh generation
Y. Su and A. S. Kumar 899

Precise global collision detection in multi-axis NC-machining
O. Ilushin, G. Elber, D. Halperin, R. Wein and M.-S. Kim 909

A Web-based process planning optimization system for distributed design
W. D. Li, S. K. Ong and A. Y. C. Nee 921

Collaborative computer-aided design—research and development status
W. D. Li, W. F. Lu, J. Y. H. Fuh and Y. S. Wong 931

A CAD-CAE integration approach using feature-based multi-resolution and

multi-abstraction modelling techniques

S. H. Lee 941

Configurable product views based on geometry user requirements
F. Fuxin 957

Tool path generation for clean-up machining by a curve-based approach
D.-S. Kim, C.-S. Jun and S. Park 967

No 10

A new CAD mesh segmentation method, based on curvature tensor analysis
G. Lavoué, F. Dupont and A. Baskurt 975

Analysis of improved positioning in five-axis ruled surface milling using envelope surface
J. Senatore, F. Monies, J.-M. Redonnet and W. Rubio 989

Triangular mesh offset for generalized cutter
S.-J. Kim and M.-Y. Yang 999

Material side tracing and curve refinement for pencil-cut machining of complex polyhedral models
Y. Ren, W. Zhu and Y.-S. Lee 1015

An efficient sweep-line Delaunay triangulation algorithm
B. Žalik 1027

A new approach to z-level contour machining of triangulated surface models using fillet endmills
C.-M. Chuang and H.-T. Yau 1039

A new recognition model for electronic architectural drawings
T. Lu, C.-L. Tai, F. Su and S. Cai 1053

On the normal vector estimation for point cloud data from smooth surfaces
D. OuYang and H.-Y. Feng 1071

Geometry-based semantic ID for persistent and interoperable reference in feature-based parametric modeling
Y. Wang and B. O. Nnaji 1081

No 11

BIO-CAD
W. Sun 1095

Bio-CAD modeling and its applications in computer-aided tissue engineering
W. Sun, B. Starly, J. Nam and A. Darling 1097

Approach of heterogeneous bio-modeling based on material features
J. Cheng and F. Lin 1115

Bayesian computer-aided experimental design of heterogeneous scaffolds for tissue engineering

L. E. Weiss, C. H. Amon, S. Finger, E. D. Miller, D. Romero, I. Verdinelli, L. M. Walker and P. G. Campbell 1127

Creation of a unit block library of architectures for use in assembled scaffold engineering
M. A. Wettergreen, B. S. Bucklen, B. Starly, E. Yuksel, W. Sun and M. A. K. Liebschner 1141

Application of micro CT and computation modeling in bone tissue engineering
H. S. Tuan and D. W. Hutmacher 1151

Surface microtopography design and manufacturing through topography descriptors: an application to prosthetic implant surfaces
N. Senin and R. Groppetti 1163

Theories and algorithms for 3-D root canal model construction
J. Dong, S. Y. Hong and G. Hasselgren 1177

Reverse deduction of virtual chromosomes of manufactured products for their gene-engineering-based innovative design
K.-Z. Chen, X.-A. Feng and X.-C. Chen 1191

No 12

Improved positioning of cylindrical cutter for flank milling ruled surfaces
H. Gong, L.-X. Cao and J. Liu 1205

Deployment of an AEC industry sector product model
C. Eastman, F. Wang, S.-J. You and D.-T. Yang 1214

Techniques for accelerating B-rep based parallel machining simulation
R. V. Fleisig and A. D. Spence 1229

Derivation of template shoe-lasts for efficient fabrication of custom-ordered shoe-lasts
T. J. Hwang, K. Lee, H. Y. Oh and J. H. Jeong 1241

Towards the standardized exchange of parameterized feature-based CAD models
M. J. Pratt, B. D. Anderson and T. Ranger 1251

Efficiency of boundary evaluation for a cellular model
R. Bidarra, J. Madeira, W. J. Neels and W. F. Bronsvort 1266

Frontal geometry from sketches of engineering objects: is line labelling necessary?
P. A. C. Varley, R. R. Martin and H. Suzuki 1285

Equal distance offset approach to representing and process planning

for solid freeform fabrication of functionally graded materials
A. Xu and L. L. Shaw 1308

No 13

Maintaining associativity between form feature models
S. Subramani and B. Gurumoorthy 1319

Admissible transformation volume for part dimensional quality gauging
X. Qian, D. M. Robinson and J. Ross 1335

A constraint solver to define correctly dimensioned and overdimensioned parts
M. L. Martiez and J. Félez 1353

Constructing medial axis transform of extruded and revolved 3D objects with free-form boundaries
M. Ramanathan and B. Gurumoorthy 1370

Reconstruction of 3D interacting solids of revolution from 2D orthographic views
H. Lee and S. Han 1388

A product information modeling framework for product lifecycle management
R. Sudarsan, S. J. Fenves, R. D. Sriram and F. Wang 1399

Euclidean Voronoi diagram of 3D balls and its computation via tracing edges
D.-S. Kim, Y. Cho and D. Kim 1412

Collaborative product innovation: integrating elements of CPI via PLM framework
A. Sharma 1425

Shape-based searching for product lifecycle applications
N. Iyer, S. Jayanti, K. Lou, Y. Kalyanaraman and K. Ramani 1435

No 14

Manipulation of CAD surface models with haptics based on shape control functions
X. Liu, G. Dodds, J. McCartney and B. K. Hinds 1447

Error measurements for flank milling
C. Li, S. Mann and S. Bedi 1459

Geometric algorithms for computing cutter engagement functions in 2.5D milling operations
S. K. Gupta, S. K. Saini, B. W. Spranklin and Z. Yao 1469

Curvature estimation scheme for triangle meshes using biquadratic Bézier patches
A. Razdan and M. S. Bae 1481

- Pencil curve detection from visibility data
S. C. Park 1492
- Cross-sectional design with curvature constraints
A. Bentamy, F. Guibault and J. Y. Trépanier 1499
- Volume CAD—CW-complexes based approach
K. Kase, Y. Teshima, S. Usami, M. Kato, S. Yamazaki, M. Ito, A. Makinouchi 1509
- Geometric and biomechanical analysis for computer-aided design of assistive medical devices
T. D. Yoo, E. Kim, J. H. Han and D. K. Bogen 1521
- Finding ridges and valleys in a discrete surface using a modified MLS approximation
S.-K. Kim and C.-H. Kim 1533
- How to reduce mold design time
S. K. Gupta 1543

Author index

- Amon, C. H. 1127
 Anderson, B. D. 1251
 Andújar, C. 847
 Azariadis, P. N. 109

 Bae, M. S. 1481
 Ballu, A. 231
 Baskurt, A. 975
 Bedi, S. 663, 1459
 Belsky, Y. 399
 Bentamy, A. 1499
 Bidarra, R. 1266
 Bilello, P. A. 779
 Bogen, D. K. 1521
 Bradbury, T. 387
 Bronsvoort, W. F. 1266
 Brunet, P. 847
 Bucklen, B. S. 1141

 Cai, S. 1053
 Camarero, R. 173
 Campbell, P. G. 1127
 Cao L.-X., 1205
 Chan, C. K. 17
 Chen, K.-Z. 1191
 Chen, X.-C. 1191
 Chen, Y. 45, 559, 727
 Cheng, J. 1115
 Cheung, H. H. 123
 Chica, A. 847
 Chiou, J. C. J. 373
 Cho, Y. 1412
 Choi, K.-J. 585
 Choi, S. H. 123
 Chong, K. W. 631
 Chuang, C.-M. 1039
 Chung, Y. C. 419
 Cohen, E. 241
 Cordier, F. 593
 Cugini, U. 609

 Dantan, J.-Y. 231
 Darling, A. 1097
 Dimri, J. 485
 Dodds, G. 1447
 Dong, J. 1177
 Drake, S. 241
 Dupont, F. 975

 Eastman, C. 1214
 Eibl, J. 357
 Elber, G. 241, 473, 909
 ElKott, D. F. 189
 Eng Teo, O. 73

 Fang, Z. 65
 Félez, J. 1353
 Feng, H.-Y. 55, 1071
 Feng, X.-A. 1191
 Fenves, S. J. 1399
 Finger, S. 1127
 Fleisig, R. V. 1229
 Fontana, M. 609
 Fudos, I. 431
 Fuh, J. Y. H. 571, 931
 Fuxin, F. 957

 Goh, L. P. 791
 Gong, H. 1205
 Gray, P. J. 663
 Groppetti, R. 1163
 Guenov, M. D. 251
 Guibault, F. 173, 1499
 Gupta, S. K. 213, 1469, 1543
 Gurumoorthy, B. 485, 1319, 1370

 Ha, J.-S. 35, 783
 Halperin, D. 909
 Han, J. H. 1521
 Han, S. 1388
 Hasselgren, G. 1177
 Held, M. 357
 Hinds, B. K. 631, 1447
 Hofer, M. 751
 Hoffmann, C. 99
 Hong, S. Y. 1177
 Hu, S.-M. 471
 Hui, K. C. 859
 Hutmacher, D. W. 1151
 Hwang, T. J. 1241

 Ilushin, O. 909
 Isenburg, M. 869
 Ismail, F. 663
 Ito, M. 1509
 Iyer, N. 509, 1435

 Jayanti, S. 509, 1435
 Jeong, J. H. 1241
 Jiao, J. 149
 Jing, F. 815
 Joneja, A. 815
 Joskowicz, L. 531
 Jun, C.-S. 967
 Jun, Y. 263

 Kalyanaraman, Y. 509, 1435
 Karniel, A. 399

 Karnik, M. 213
 Kase, K. 1509
 Kato, M. 1509
 Kelkar, A. 1
 Khachan, M. 173
 Kim, C.-H. 1533
 Kim, D. 1412
 Kim, D.-S. 967, 1412
 Kim, E. 1521
 Kim, H.-C. 711
 Kim, K.-J. 473
 Kim, M.-S. 473, 909
 Kim, S.-J. 999
 Kim, S.-K. 1533
 Ko, H.-S. 585
 Koc, B. 1, 287
 Kou, X. Y. 307
 Kumar, A. 545
 Kumar, A. S. 899
 Kuo, C.-C. 825

 Lau, A. 387
 Lau, W. 387
 Lavoué, G. 975
 Lee, H. 1388
 Lee, J.-H. 837
 Lee, K. 201, 1241
 Lee, S.-H. 711, 941
 Lee, Y.-S. 1015
 Leopoldseeder, S. 751
 Li, C. 1459
 Li, C. G. 645
 Li, C. L. 645
 Li, W. 73, 791
 Li, W. D. 571, 921, 931
 Lian, L. 559, 727
 Liebschner, M. A. K. 1141
 Lin, F. 1115
 Lindstrom, P. 869
 Liu, J. 1205
 Liu, X. 1447
 Lockett, H. L. 251
 Lou, K. 509, 1435
 Lu, T. 1053
 Lu, W. F. 931
 Luo, Z. G. 623

 Ma, W. 693
 Madeira, J. 1266
 Magnenat-Thalmann, N. 593
 Magrab, E. B. 213
 Makinouchi, A. 1509
 Mann, S. 1459
 Martin, P. 231

- Martin, R. R. 473, 1285
 Martínez, M. L. 1353
 Mathieu, L. 231
 McCartney, J. 631, 1447
 Miller, E. D. 1127
 Mok, A. C. K. 645
 Monies, F. 989
 Myles, A. 139
- Nagi, R. 1
 Nam, J. 1097
 Navazo, I. 847
 Nee, A. Y. C. 921
 Neels, W. J. 1266
 Nnaji, B. O. 1081
- Oh, H. Y. 1241
 Ong, S. K. 921
 Ostrovsky-Berman, Y. 531
 OuYang, D. 1071
- Pal, P. 545
 Park, J. W. 419
 Park, S. 967
 Park, S. C. 451, 1492
 Pasko, A. 285
 Peters, J. 139
 Piegl, L. A. 461, 781, 879
 Popescu, V. 99
 Pottmann, H. 471, 751
 Pratt, M. J. 1251
- Qian, X. 1335
- Radzevich, S. P. 767
 Ramanathan, M. 1370
 Ramani, K. 509, 1435
 Ranger, T. 1251
 Razdan, A. 1481
 Redonnet, J.-M. 1
 Regli, W. C. 339
 Reich, Y. 399
 Ren, Y. 1015
 Rizzi, C. 609
 Robinson, D. M. 1335
 Romero, D. 1127
- Ross, J. 1335
 Rossignac, J. 847
 Rubio, W. 989
- Saini, S. K. 1469
 Samanta, K. 287
 Sapidis, N. S. 109, 137
 Schroeder, C. 339
 Senatore, J. 989
 Senin, N. 1163
 Seong, J.-K. 473
 Séquin, C. H. 201, 737
 Shah, J. J. 881
 Shapiro, V. 285
 Sharma, A. 1425
 Shaw, L. L. 1308
 Shin, Y. H. 419
 Shokoufandeh, A. 339
 Snoeyink, J. 869
 Spence, A. D. 1229
 Spranklin, B. W. 1469
 Sriram, R. D. 1399
 Stamat, V. 431
 Starly, B. 65, 387, 1097, 1141
 Steiner, T. 751
 Su, F. 1053
 Su, Y. 899
 Subramani, S. 1319
 Sudarsan, R. 1399
 Sun, W. 65, 339, 387, 1095, 1097, 1141
 Suzuki, H. 1285
- Tai, C.-L. 1053
 Tan, S. T. 17, 307
 Tang, K. 271, 799, 815
 Tchon, K.-F. 173
 Teng, Z. 55
 Teshima, Y. 1509
 Tigga, A. M. 545
 Trépanier, J. Y. 1499
 Tuan, H. S. 1151
- Usami, S. 1509
- Varley, P. A. C. 1285
 Veldhuis, S. C. 189
- Verdinelli, I. 1127
 Vinacua, A. 847
 Volino, P. 593
- Walker, L. M. 1127
 Wang, C. C. L. 83, 271, 583, 675, 799
 Wang, F. 1214, 1399
 Wang, M. Y. 321
 Wang, W. 751
 Wang, X. 321
 Wang, Y. 675, 1081
 Wein, R. 909
 Weiss, L. E. 1127
 Wettergreen, M. A. 1141
 Wong, Y. S. 931
 Wu, Y.-B. 859
- Xu, A. 1308
 Xu, S. 73, 791
- Yamazaki, S. 1509
 Yang, D. 1214
 Yang, M.-Y. 999
 Yang, X. 497
 Yang, Z. 45, 559, 727
 Yao, Z. 1469
 Yau, H.-T. 825, 1039
 Yen, J. 201
 Yeung, B. M. L. 799
 Yoo, K.-H. 35, 783
 Yoo, T. D. 1521
 You, S.-J. 1214
 Yuen, M. M. F. 583, 623, 675
 Yuksel, E. 1141
- Žalik, B. 1027
 Zhang, Y. 149
 Zhao, G. 73, 791
 Zhao, Z. 881
 Zhu, W. 1015

Keyword index

- 5-Axis machining, 663, 909, 1205
 Active contours, 751
 Apollonius problem, 1412
 Apparel products, 675
 Approximation, 357, 1499
 APT cutter, 999
 Arbitrary-shaped objects, 1308
 Arbitrary topology, 693
 Artificial teeth prostheses, 35
 Assistive medical device design, 1521
 Association rules, 149
 Automatic design synthesis, 645
 Automatic dimensioning, 1353
 Automation, 675
- B-rep, 1229
 B-spline curves and surfaces, 73
 B-splines, 693
 Ball-end milling, 55
 Bayesian modeling 1127
 Bi-arcs, 241
 Bi-arcs, 357
 Bio-CAD, 1097
 Biomechanics, 1521
 Biomedical applications, 339
 Biomodeling, 387, 1097
 Block Cartesian abstraction, 899
 Bone engineering 1151
 Boundaries, 975
 Boundary evaluation, 1266
 Boundary representation, 1266
 Bounding box, 17
 Build direction, 711
 Building model, 1214
- CAD, 201, 431, 509, 815, 975, 1097, 1447, 1509
 CAD/CAM, 1015
 CAE, 1509
 CAM, 1509
 Cell, 1509
 Cellular model, 1266
 Cellular solids 1141
 Circle splines, 201
 Circle swept volume, 451
 CL surface, 999
- Classification, 975
 Clean-up machining, 967
 Cloth design, 609
 Cloth simulation, 585, 593
 Clustering, 399
 CMM, 189
 Co-design systems, 571
 Collaborative CAD, 571, 931
 Collision detection and verification, 909
 Collision resolution, 585
 Collaborative Product Innovation, 1425
 Complexity analysis, 1266
 Computational geometry, 783, 1027, 1229
 Computational geometry channels, 139
 Computer aided design, 213, 1151, 339, 461, 1141
 Computer aided manufacturing, 1229
 Computer-aided tissue engineering (CATE), 65, 1097, 1141
 Computer graphics, 663
 Conceptual design, 45, 1285
 Concurrent engineering, 1319
 Configuration management, 957
 Constrained curve fitting, 139
 Constraints, 1251
 Construction history, 1251
 Continuity, 1081
 Cooling system design, 645
 Core Product Model, 1399
 Cost estimation, 881
 CPI, 1425
 Crossover, 545
 CT-dependent characteristic surface, 767
 Curvature estimation, 1481
 Curvature extrema, 1533
 Curvature tensor, 975
 Curve approximation, 751, 791
 Curve-based approach, 967
 Curves and surfaces, 201
 Custom-tailored shoes, 1241
 Customer satisfaction, 149
 Customization, 1241
 Cutter engagement, 1469
 Cutter path planning, 1469
 Cutting simulation, 419
 Cutting-tool-accessibility, 767
- CW-complex, 1509
 Cylindrical grid, 17
- 2D curve offsetting, 451
 3D, 509
 3D Clipping, 1319
 3D fitting, 799
 3D garment CAD system, 623
 3D garment fitting simulation, 623
 3D-mesh, 975
 3D modeling, 35
 3D scan data, 83
 3D streaming, 931
 Data mining, 149
 Decomposition, 859
 Deformable modeling, 1447
 Delaunay triangulation, 825, 1027
 Depth buffer, 663
 Design automation, 645
 Design for manufacturing, 881
 Design optimization, 287
 Design structure matrix, 399
 Design theory and methodology 1191
 Detail-preserving, 73
 Developable surface, 837
 DFM, 881
 Digital curves, 109
 Digital mock-ups, 957
 Digital product development, 957
 Digital surfaces, 109
 Digital topology, 173
 Direct slicing, 387
 Direction map representation, 837
 Directional tangent vectors, 1071
 Discrete molds, 1
 Discrete vector model, 419
 Distance function, 751
 Distribute system, 931
 Distributed design, 921
- Edge-tracing, 1412
 Effective properties, 65
 Efficiency, 1266
 Electronic architectural drawing, 1053
 Endodontic treatment, 1177
 Energy model, 631
 Engineering design, 1285, 1499
 Envelope surface, 989

- Equal distance offset, 1308
- Error analysis, 1
- Error machining, 989
- Error metric, 1459
- Euclidean Voronoi diagrams, 1412
- Extreme points, 17
- Face based subdivision, 497
- Fashion design, 593
- Fashion industry, 83
- Fast variational design, 73
- Feature, 941
- Feature-based design and modeling, 287
- Feature-based modeling, 83
- Feature-based design, 431
- Feature-based parametric modeling, 1081
- Feature editing, 1319
- Feature modeling, 1266
- Feature points, 859
- Feature Recognition, 251, 545
- Feature sensitivity, 751
- Feature tree, 1115
- Features, 1251
- Feed rate adjustments, 1469
- FEV representation, 545
- Fidelity, 99
- Field morphing, 899
- Fillet end-mill, 1039
- Fillet-cut, 967
- Filtering, 791
- Finite element analysis, 99
- Fitness, 17
- Fitness function, 545
- Fitting, 675
- Five-axis machining, 1459
- Five-axis pocket machining, 373
- Flank milling, 1205
- Floating-point, 869
- Floor wall and ceiling, 373
- Focal surface, 767
- Font scaling, 431
- Free form boundaries, 1370
- Free-form objects, 1
- Freeform fabrication, 65
- Freeform surface, 799
- Freeform surfaces, 473
- Frontal geometry, 1285
- Function evaluation, 727
- Functional tolerancing for assembly, 231
- Functionally graded material, 307
- Functionally graded materials, 1308
- Fuzzy logic, 899
- FWC, 373
- Garment design, 585
- Gene engineering 1191
- Generalized cylinder, 837
- Genetic algorithm, 711
- Genetic engineering 1191
- Geodesic curves, 815
- Geodesic offsets, 815
- Geometric constraint solving, 1353
- Geometric modeling, 201, 941
- Geometric optimization, 751
- Geometric reasoning, 213
- Geometrical sculpture, 737
- Geometry coding, 869
- Geometry constraints, 399
- Gouging (undercutting), 767
- Graphics board, 1492
- Grouping, 1241
- Handle removal, 847
- Haptic modeling, 559
- Haptic shape modeling, 45, 727
- Haptics, 1447
- Hermite interpolation, 271
- Heterogeneous designs 1127
- Heterogeneous feature tree, 307
- Heterogeneous models, 339
- Heterogeneous object design, 287
- Heterogeneous object modeling, 307
- Heterogeneous objects, 321
- Heterogeneous solid 1115
- Hexahedral mesh generation, 899
- Hierarchical representation, 307
- High speed machining, 241
- Hint-based recognition, 1388
- Hollowing out a solid, 451
- Homologising, 545
- Human body, 83
- Hybrid approach, 545
- Hybrid model, 419
- Indicatrix of conformity, 767
- Injection-moulding, 251
- Innovation, 1425
- Inspection, 189
- Integration of CAD and CAE, 941
- Interacting solids of revolution, 1388
- Interoperability, 1399
- Interpolation, 1499
- Interpretation, 1053
- Iso-surface extraction, 847
- Knot placement, 791
- Laplacian-Isoparametric transformation, 899
- Layered manufacturing, 123, 387
- Level of abstraction, 941
- Level of detail, 941
- Level set method, 321
- Limit surface, 693
- Line drawing interpretation, 1285
- Line scanning, 189
- Linear programming, 139
- Lines and arcs, 241
- Local Voronoi mesh, 1071
- Locally small deflection spline, 791
- Lossless, 869
- Lower envelopes, 909
- Machining error, 55
- Machining simulation, 1229
- Made-to-measure, 675
- Manufacturability analysis, 881
- Marching cubes, 847
- Mass customization, 149
- matching, 509
- Material composition function 1115
- Material feature 1115
- Material features, 287
- Material modeling, 321
- Mathematical morphology, 751
- Maximum intersection, 783
- Mechanical design, 531
- Medial axis transform, 241, 1370
- Medical imaging 1151
- Medical rapid prototyping, 387
- Mesh adaptation, 173
- Mesh compression, 869
- Mesh simplification, 1521
- Mesher, 497
- Micro CT 1151
- Mid-surface, 251
- Minkowski Sum, 35
- Moving-least-squares, 1533
- Multi-axis CNC machine, 767
- Multi-material, 123
- Multi-materials, 727
- Multi-resolution, 941
- Multiple feature models, 1319
- Multiresolution constraints, 73
- NC machining, 419, 909, 999, 1015
- Newtonian dynamics, 609
- Non-manifold topology, 941
- Normal based subdivision, 497
- Normal vector, 1071
- NURBS, 189, 1447
- NURBS surface discretization, 1
- Octree, 173
- Offset, 999
- Offspring, 545
- Ontology, 1399
- Open Assembly Model, 1399
- Optimization, 1459, 1499
- Orthographic projections, 485, 1388
- Over-constrained problem, 1353
- Parabolic cutter, 999
- Parallel processing, 1229
- Parameters, 1251
- Parametric design, 431
- Parametric family, 1081
- Parametric models, 531
- Parametric space, 271
- Part containment, 213
- Part orientation, 711
- Partitioning, 399
- Pattern flattening, 631
- Pattern prototyping, 593
- Pencil curve computation, 1492

- Pencil curve machining, 1492
- Pencil-cut, 967
- Pencil-cut curve tracing, 1015
- Pencil-cut path generation, 1015
- Performance measurements, 1266
- Permeability, 1141
- Persistent naming, 1081
- Physically based modeling, 623
- Physics-based modelling, 609
- Piecewise hole filling, 263
- Plasma spray surface coating process simulation, 1163
- Plastic injection mould, 645
- PLM, Collaboration, 1425
- Pocket feature, 545
- Point cloud data, 1071
- Point-based representation, 109
- Point projection algorithm, 109
- Polylines, 109
- Porous models, 339
- Post-processing, 711
- Problem decomposition, 399
- Process planning, 921, 1038
- Product data exchange, 1251
- Product definition, 149
- Product design, 727
- Product innovation 1191
- Product Lifecycle Management (PLM), 1399, 1425
- Product model, 1214
- Product portfolio, 149
- Prosthetic implant design, 1163

- Quadrilateral mesh, 271
- Quantifier, 231

- Radiographic image, 1177
- Rapid product development, 559
- Rapid prototyping, 451, 711, 737, 1141
- Rational quadratic Bézier, 1412
- Ray tracing, 909
- Re-configurable molds, 1
- Reactive garment design modification, 623
- Recognition, 1053
- Reconstruction, 485
- Recursive material evaluation, 307
- Redundant constraints, 1353
- Region growing, 825, 975
- Region merging, 975
- Registration, 751
- Relief machining, 1492
- Representation, 339, 1308
- Requirement management, 149
- Research challenges, 461
- Reverse deduction 1191
- Reverse engineering, 45, 263, 399, 559

- Ridge lines, 1533
- Riemannian metric, 173
- Ringed surfaces, 473
- Root canal model 1177
- Ruled surface, 989, 1205
- Ruled surfaces, 473

- Scaffolds, 1141, 1151
- Scallop height, 55
- Sculpture generator, 737
- Sculptured surface, 767
- Sculptured surfaces, 189
- Seam insertion, 631
- Search time, 545
- Sectional views, 485
- Segmentation, 975, 1481
- Self-overlap, 271
- Shape control functions, 1447
- Shape optimization, 737
- Shape search, 509
- Shape signatures, 213
- Shape similarity, 213, 509
- Shoe-last, 1241
- Side milling, 989
- Similarity measures, 1241
- SINEHIR model, 1053
- Sizing dimensions, 83
- Skeleton, 173, 1370
- Skinning, 1499
- SLEFE, 139
- Smoothing, 1499
- Smoothing polylines, 109
- Solid freeform fabrication, 387, 1127, 1308
- Solid modeling, 339, 941, 1229
- Solid models, 485
- Solid reconstruction, 1388
- Solution path, 545
- Space subdivision, 909
- Sparse data interpolation, 201
- Spherical algorithms, 783
- Standards, 1399
- State of CAD status assessment, 461
- State-of-the-art, 509
- STEP, 251, 1214
- Stereolithography, 711
- Strain energy, 799, 1521
- Strain energy density function, 1521
- Structural optimization, 321
- Structured grid, 271
- Subdivision surfaces, 693
- Surface approximation, 751
- Surface energy, 815
- Surface fitting, 859
- Surface flattening, 799
- Surface interpolation, 497
- Surface machining, 55

- Surface parametrization, 1521
- Surface partitioning, 767
- Surface reconstruction, 825
- Surface-surface intersection, 473
- Sweep-line paradigm, 1027
- Swept surfaces, 473

- Tangent-continuous, 357
- Three-dimensional solution, 675
- Three-dimensional surface microtopography analysis, 1163
- Tissue engineering, 65, 1127, 1141
- Tissue scaffold, 65
- Tissue scaffold design, 1097
- Tolerance band, 357
- Tolerance synthesis, 231
- Tolerance zones, 531
- Tolerancing, 531
- Tool axis determination, 373
- Tool path, 999
- Tool path generation, 967
- Tool path planning, 55, 123
- Topological ambiguity, 847
- Topological ID, 1081
- Traditional jewellery, 431
- Triangle meshes, 847, 1481
- Triangular mesh, 263, 999
- Triangulated surface model, 1039
- Triangulated surfaces, 663
- Trimmed surface, 859

- Uniform wall thickness, 451

- Variety, 149
- Virtual boundary, 231
- Virtual chromosome 1191
- Virtual garments, 593
- Virtual prototyping, 123, 559
- Virtual simulation, 609
- Visibility information, 1492
- Visibility maps, 783
- Visualization, 99, 123
- Volume, 1509
- Volume sculpting, 45
- Voronoi diagrams, 241, 1071, 1370
- Voxel based design, 431

- Wavelets, 73
- Web-based system, 921
- Web-based visualization, 571
- Woven material, 799
- Wrinkles, 815

- Z-buffer, 1229
- z-level contour machining, 1039
- ZMap, 35